EST3 and LAN/WAN Networks
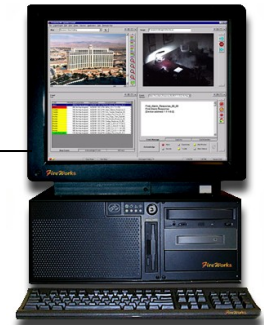
Network LAN/WAN

What is the EST3 Platform?

- Stand Alone or Peer-to-Peer Life Safety Network
- Accurate, Rapid Smoke and Fire Detection
- Sprinkler System Monitor
- Multi-Channel Emergency Communication
- HVAC Smoke Control
- Related Life Safety or Property Protection Operations
- Access Control/Security/CCTV

- Up to 64 Network Nodes
- Up to 10 Signature loops per node
- Up to 125 detectors and 125 mod... circu...
- Up to 160,000 points
- Up to 7,000 I/O circuits
- Up to 1800A @ 24 Volts
- Up to 8 ...els ...led

How EST Defines "True Integration"

- SYNERGY
  - Customization of fire, security, and access control functions using a single Installer
  - Two "forgotten" elements of integration
   - Smoke control
    - Suppression

How EST Defines "True Integration"

- SYNERGY
  - Multiple UL Listings
    - UL-864 Control Units for Fire-Protective Signaling Systems
    - UL-294 Access Control System Units
    - UL-1610 Central-Station Burglar-Alarm Units
    - UL-1076 Proprietary Burglar Alarm Units and Systems
    - UL-1035 DACT

Building Synergy

- **64 Network Nodes (Panels) per EST3 System**
- **Over 160,000 points per EST3 System**
- **Network multiple EST3 Systems**
- **Stand alone or Peer-to-Peer Life Safety**
- **Accurate, rapid smoke and fire detection**
- **Sprinkler system monitor**
- **Multi-Channel emergency communication**
- **HVAC smoke control**
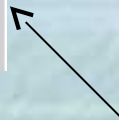
SDDC   **SIGA-IPHS**   **SIGA-IPHS**   **SIGA-IPHS**

Fire Alarm Backbone
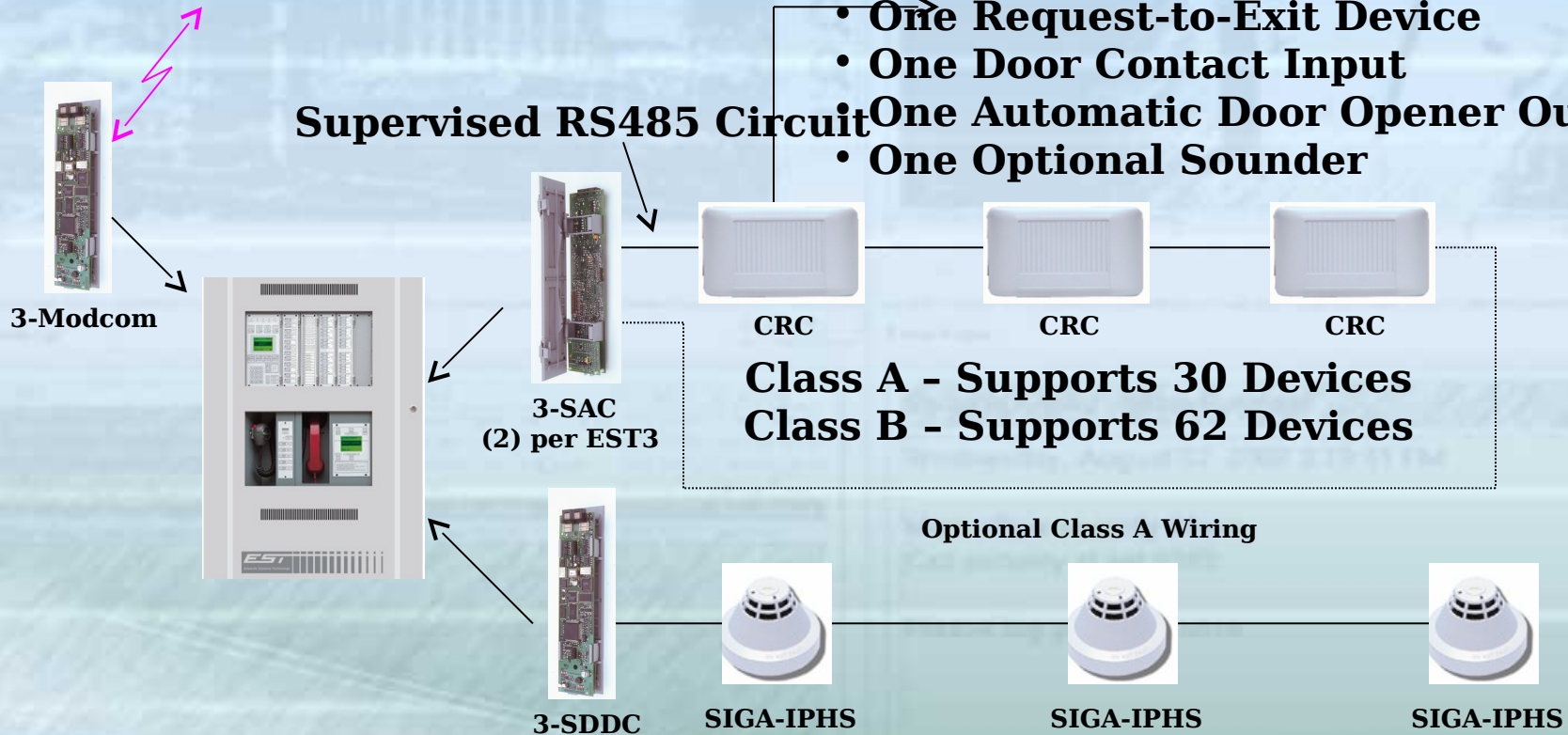
Building Synergy

Access Control Database

- Management Software
- Non-Dedicated PC
- Modcom or Direct Connect

- One Ingress Reader/Keypad
- One Egress Reader/Keypad
- One Locking Device
- One Request-to-Exit Device
- One Door Contact Input
- One Automatic Door Opener Output
- One Optional Sounder

3-Modcom

Supervised RS485 Circuit

CRC   CRC   CRC

3-SAC
(2) per EST3

Class A – Supports 30 Devices
Class B – Supports 62 Devices

Optional Class A Wiring

3-SDDC   SIGA-IPHS   SIGA-IPHS   SIGA-IPHS

Fire Alarm - Add Access Control

Building Synergy

- Concurrent Bilingual
- Displays Fire and Security Events
- Arm, Disarm, Bypass Functions
- 255 Partitions per EST3 System
- Event Storage (500)

Supervised RS485 Circuit

(2) 3-SACs per EST3 Panel

3-SAC

KPDISP

CRC

KPDISP

Class A – Supports 30 Devices
Class B – Supports 62 Devices

Optional Class A Wiring

3-SDDC

SIGA-SEC2

SIGA-IPHS

SIGA-MD

SIGA-IPHS

- (2) Alarm Inputs
- Signature Device

- 34' Pattern Coverage
- Signature Device

Fire Alarm - Access Control – Add Security

Building Synergy

Access Control Database

Central Station Monitoring

Fireworks GUI Workstation

- 255 Accounts
- 10 Modules per EST3 Network
- Dual reporting

- Command Workstation
- Monitors all events
- Multiple Workstation

Supervised RS485 Circuit

3-Modcom

3-SAC

KPDISP

CRC

KPDISP

Class A – Supports 30 Devices
Class B – Supports 62 Devices

Optional Class A Wiring

3-SDDC

SIGA-SEC2

SIGA-IPHS

SIGA-MD

SIGA-IPHS

EST3, Keypads, LCD Displays can display system events throughout the EST3 Network.

Fire Alarm - Access Control – Security – Add Monitoring

Building Synergy

Access Control Database

Central Station Monitoring

Fireworks GUI Workstation

CCTV Controller

3-Modcom

Supervised RS485 Circuit

• Supports Major Manufacturers

3-SAC

KPDISP

CRC

KPDISP

Class A – Supports 30 Devices
Class B – Supports 62 Devices

Optional Class A Wiring

EST3, Keypads, LCD Displays can display system events throughout the EST3 Network.

3-SDDC

SIGA-SEC2

SIGA-IPHS

SIGA-MD

SIGA-IPHS

Alarm - Access Control – Security – Monitoring – Add CCTV Con
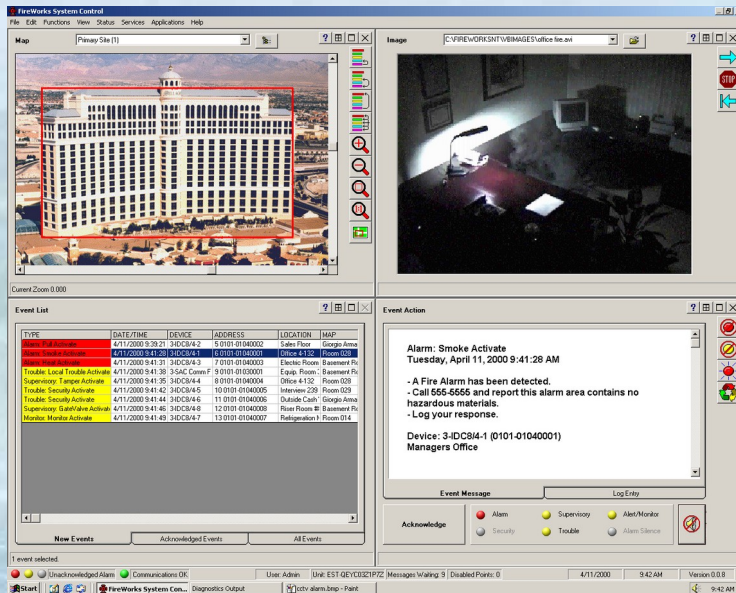
System Monitoring

- Fireworks
  - Current Platform
  - Future Platform

File   Edit   Functions   View   Status   Services   Applications   Help

Map   Primary Site (1)   ? ⊞ □ X

Image   C:\FIREWORKSNT\VBIMAGES\office fire.avi   ? ⊞ □ X

Current Zoom 0.000

Event List   ? ⊞ □ X

TYPE	DATE/TIME	DEVICE	ADDRESS	LOCATION	MAP
Alarm: Pull Activate	4/11/2000 9:39:21	3-IDC8/4-2	5 0101-01040002	Sales Floor	Giorgio Arma
Alarm: Smoke Activate	4/11/2000 9:41:28	3-IDC8/4-1	6 0101-01040001	Office 4-132	Room 028
Alarm: Heat Activate	4/11/2000 9:41:31	3-IDC8/4-3	7 0101-01040003	Electric Room	Basement Ro
Trouble: Local Trouble Activate	4/11/2000 9:41:38	3-SAC Comm F	9 0101-01030001	Equip. Room ᠄	Basement Ro
Supervisory: Tamper Activate	4/11/2000 9:41:35	3-IDC8/4-4	8 0101-01040004	Office 4-132	Room 028
Trouble: Security Activate	4/11/2000 9:41:42	3-IDC8/4-5	10 0101-01040005	Interview 239	Room 029
Trouble: Security Activate	4/11/2000 9:41:44	3-IDC8/4-6	11 0101-01040006	Outside Cash '	Giorgio Arma
Supervisory: GateValve Activate	4/11/2000 9:41:46	3-IDC8/4-8	12 0101-01040008	Riser Room #:	Basement Ro
Monitor: Monitor Activate	4/11/2000 9:41:49	3-IDC8/4-7	13 0101-01040007	Refrigeration N	Room 014

New Events   Acknowledged Events   All Events

1 event selected.

Event Action   ? ⊞ □ X

Alarm: Smoke Activate
Tuesday, April 11, 2000 9:41:28 AM

- A Fire Alarm has been detected.
- Call 555-5555 and report this alarm area contains no hazardous materials.
- Log your response.

Device: 3-IDC8/4-1 (0101-01040001)
Managers Office

Event Message   Log Entry

Acknowledge

● Alarm   ● Supervisory   ● Alert/Monitor
○ Security   ● Trouble   ○ Alarm Silence

● ● ● Unacknowledged Alarm   ● Communications OK   User: Admin   Unit: EST-QEYC03Z1P7Z   Messages Waiting: 9   Disabled Points: 0   4/11/2000   9:42 AM   Version 0.0.8

Start   FireWorks System Con...   Diagnostics Output   cctv alarm.bmp - Paint   9:42 AM
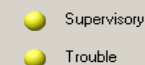
FireWorks System Control

File Edit Functions View Status

Map   Primary Site (1)

Current Zoom 0.000

Event List

TYPE	DATE/TIME	DEVICE	ADDRESS	LOCATION	MAP
Alarm: Pull Activate	4/11/2000 9:39:21	3-IDC8/4-2	5 0101-01040002	Sales Floor	Giorgio Arma
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Alarm: Heat Activate	4/11/2000 9:41:31	3-IDC8/4-3	7 0101-01040003	Electric Room	Basement Ro
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Monitor: Monitor Activate	4/11/2000 9:41:49	3-IDC8/4-7	13 0101-01040007	Refrigeration N	Room 014

New Events   Acknowledged Events   All Events

1 event selected.

Event List

TYPE	DA
Alarm: Pull Activate	4/1
Alarm: Smoke Activate	4/1
Alarm: Heat Activate	4/1
Trouble: Local Trouble Activate	4/1
Supervisory: Tamper Activate	4/1
Trouble: Security Activate	4/1
Trouble: Security Activate	4/1
Supervisory: GateValve Activat(	4/1
Monitor: Monitor Activate	4/1

New Events   Acknowledged Events   All Events

1 event selected.

Event Message   Log Entry

Acknowledge

Alarm   Supervisory   Alert/Monitor
Security   Trouble   Alarm Silence

Unacknowledged Alarm   Communications OK   User: Admin   Unit: EST-QEYC03Z1P7Z   Messages Waiting: 9   Disabled Points: 0   4/11/2000   9:42 AM   Version 0.0.8

Start   FireWorks System Con...   Diagnostics Output   cctv alarm.bmp - Paint   9:42 AM

File   Edit   Functions

Map

Current Zoom 0.000

Event Action

Alarm: Smoke Activate
Tuesday, April 11, 2000 9:41:28 AM

- A Fire Alarm has been detected.
- Call 555-5555 and report this alarm area contains no
hazardous materials.
- Log your response.

Device: 3-IDC8/4-1 (0101-01040001)
Managers Office

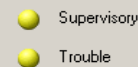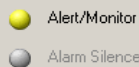Event Message   Log Entry

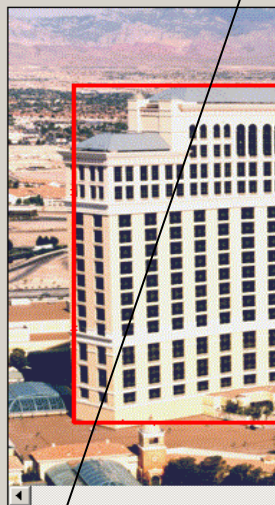Acknowledge

○ Alarm   ○ Supervisory   ○ Alert/Monitor
○ Security   ○ Trouble   ○ Alarm Silence

Event List

TYPE
Alarm: Pull Activate
Alarm: Smoke Activa
Alarm: Heat Activate
Trouble: Local Troub
Supervisory: Tamper
Trouble: Security Act
Trouble: Security Act
Supervisory: GateVa
Monitor: Monitor Acti

New Events   Acknowledged Events   All Events

1 event selected.

Device: 3-IDC8/4-1 (0101-01040001)
Managers Office

ntains no

Event Message   Log Entry

Acknowledge

○ Alarm   ○ Supervisory   ○ Alert/Monitor
○ Security   ○ Trouble   ○ Alarm Silence

○ ○ ○ Unacknowledged Alarm   ○ Communications OK   User: Admin   Unit: EST-QEYC03Z1P7Z   Messages Waiting: 9   Disabled Points: 0   4/11/2000   9:42 AM   Version 0.0.8

Start   FireWorks System Con...   Diagnostics Output   cctv alarm.bmp - Paint   9:42 AM

Single Fireworks GUI Workstation connected to a single EST3 Integrated Control

You can connect two Fireworks Workstations to a single EST3 Controller

Single Fireworks GUI Workstation
Connected to a single
EST3 Integrated Controller Network
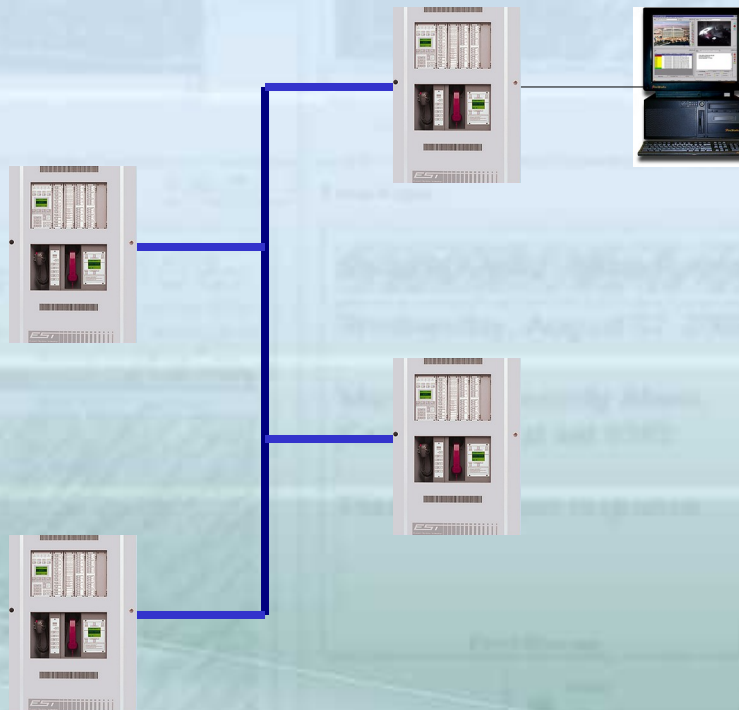
Multiple Fireworks GUI Workstations Connected to a single EST3 Integrated Controller Network
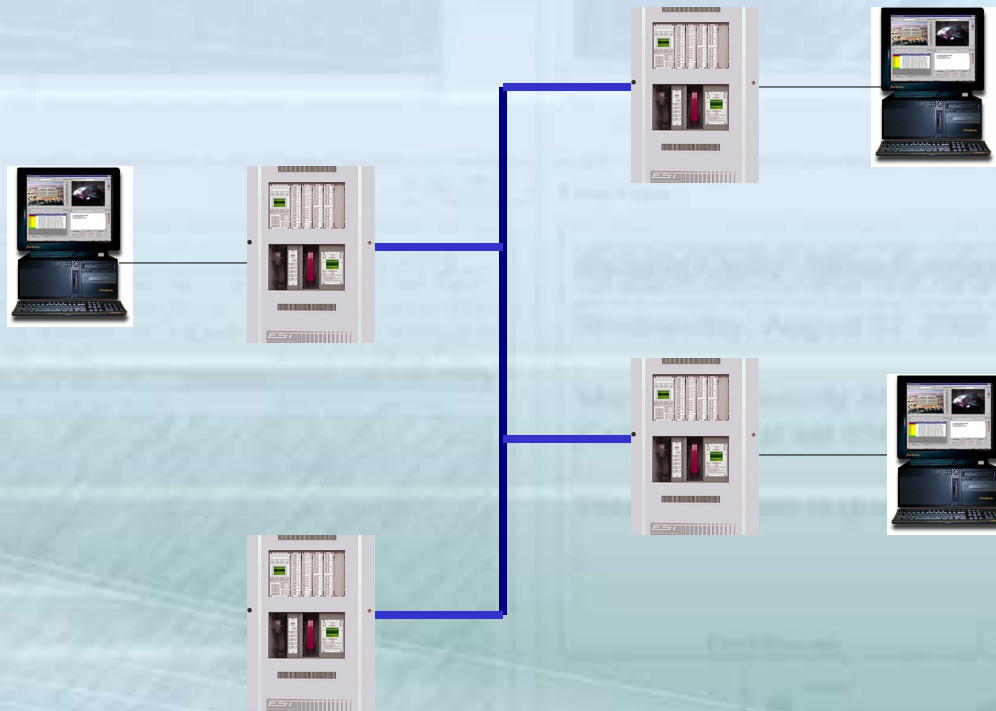
Single Fireworks GUI Workstation Connected to multiple EST3 Integrated Controller Networks
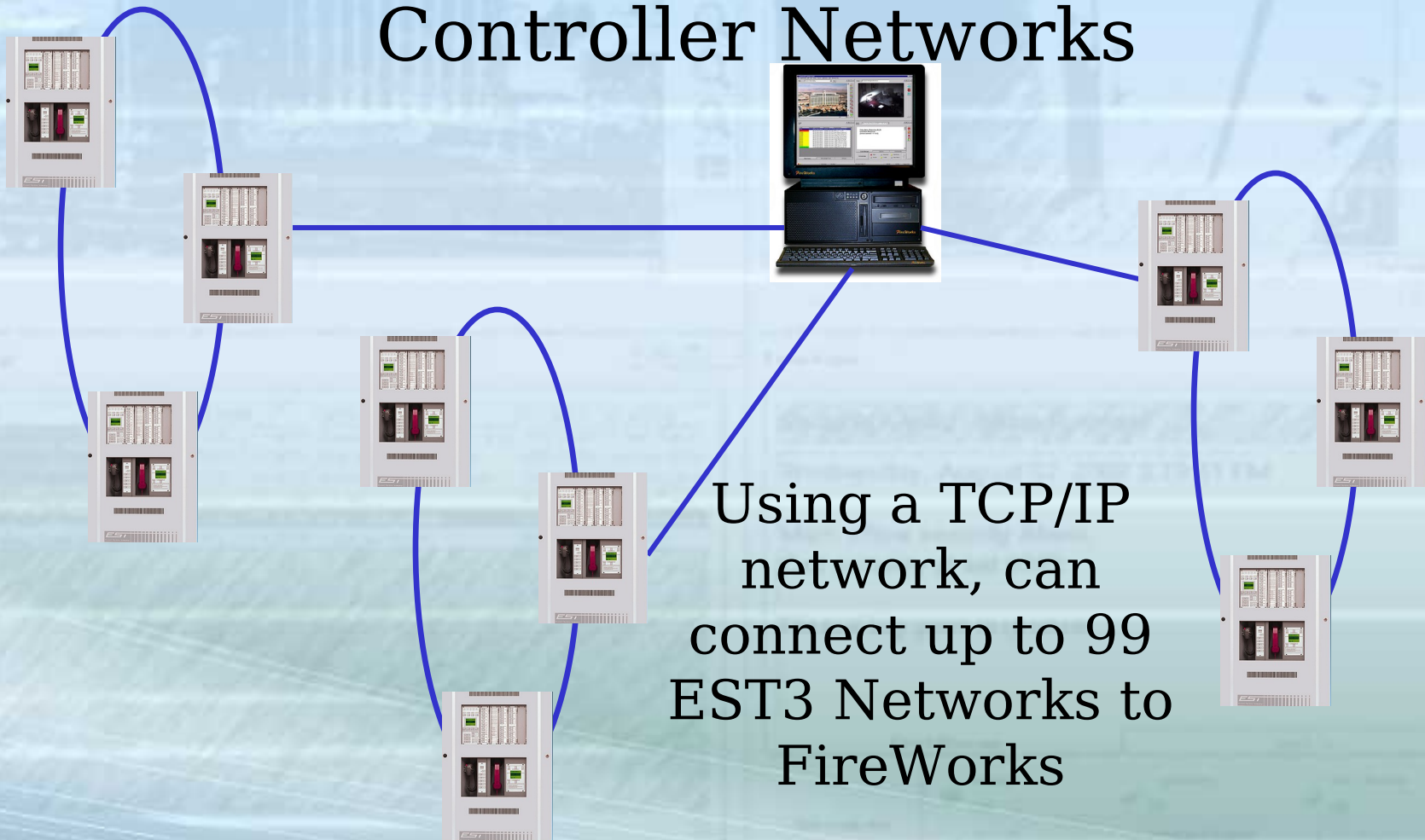
Using a TCP/IP network, can connect up to 99 EST3 Networks to FireWorks

Connection Solutions for Fireworks Workstation

Device Server Connection

NETCOM
Device Server

Company
LAN / WAN

NETCOM
Device Server

**RS232 Port
Connection**

Modem

Modem

Short Haul Modem Connection

Ethernet Networking

The devices inside this cloud represent the possible Ethernet network (LAN/WAN) devices that you may see when setting up one of the network applications. This is only one possible network configuration and are only several of the devices that you may encounter when setting up a network.

- What is Ethernet Networking?
  - Basic networking consists of two or more computers, connected so that they can communicate with each other to share data.

Device Networking

- ## How Do We Get Started?
  - Device Server
    - Network Connection
      - Ethernet Bridge to Serial Devices

NETCOM-1S Device Server

- Connects EST FACP's to Existing Ethernet Network Via RS-232 Serial Port.

  - Remotely configure, program, monitor, and manage EST3, EST2 stand-alone, IRC-3, or FCC fire alarm control panels with FireWorks and ACDB

  - Replace limited-distance point-to-point serial connections

  - Support any RS-232 serial interface device including a remote printer

  - Connect to 10BASE-T / 100BASE-TX Ethernet (RJ-45)

  - Quick and easy configuration using the included Windows software or by using the built-in web server

  - Mount it easily in a 3-CHAS7 or MFC-A using the NETCOM-BRKT mounting bracket

  - Use 120 Vac or 24 Vdc

NETCOM-1F Device Server

- Connects EST FACP's to New or Existing Ethernet Network Via a 10Base-FL Fiber Optic Interface.
  - Remotely configure, program, monitor, and manage EST3, EST2 stand-alone, IRC-3, or FCC fire alarm control panels with FireWorks and ACDB
  - Choose from many supplied Industrial Communications Protocols or the Standard Serial Protocol Tunneling
  - Choose from dual serial ports, DB-9 and DB-25, at rates up to 115,200 bps
  - Connect to 10BASE-T Ethernet (RJ-45) and 10BASE-FL   (ST multimode fiber) Ethernet interfaces
  - Use 24 Vdc or 100 to 240 Vac power adapter
  - Use a NETCOM-BRKT mounting bracket to easily mount it in a 3-CHAS7 or MFC-A
  - Configure quickly and easily using the included Windows software or by using the built-in web server

NETCOM-16D Multi-port Device Server

- Multiport Device Server Providing Network Access to 16 EST FACP's.
    - Supports TCP/IP, IXP (NetWare), Local Area Transport (LAT), AppleTalk (EtherTalk) and Microsoft LAN Management protocols.
    - Remotely configure, program, monitor, and manage EST3, EST2 stand-alone, IRC-3, or FCC fire alarm control panels with FireWorks and ACDB
    - Connect to 10BASE-T and AUI Ethernet Interfaces
    - Configure quickly and easily using the included Windows software or by using the built-in web server
    - Use 120 Vac

Device Networking

- ## How Do We Get Started?
  - Device Server
  - Switch/Hub
    - Create a Dedicated Network
      - Single or Multimode Fiber Optic Backbone
      - Examine, Process and Route Packets to Correct Ports.
      - Allow Only Necessary Info to Pass Through.
      - Packets are Filtered and Regenerated
        - » Separate Collision Domains
        - » Allows Greater Distances

NETSW-EIS6-MM Switch

- The NETSW-EIS6-MM is a six port, 10/100 Mbps auto-negotiating switching hub with a mix of four 10/100 Mbps twisted-pair copper ports and two 100 Mbps multi-mode fiber ports. The NETSW-EIS6-MM supports ST-style connectors.

  - Use 10BASE-T/100BASE-TX/100BASE-FX
  - Use multimode fiber
  - Use a loop detection algorithm
  - Comply with IEEE 802.3
  - Use an auto-negotiated data rate and flow control on twisted-pair ports
  - Use broadcast storm control
  - Use full- or half-duplex
  - Use a NETCOM-BRKT mounting bracket to easily mount it in a 3-CHAS7 or MFC-A
  - Use low-voltage AC or 24 Vdc from FACP or Booster Supply
  - Monitor activity with link/activity and data rate LEDs

NETSW-EIS6-SM Switch

- The NETSW-EIS6-SM is a six port, 10/100 Mbps auto-negotiating switching hub with a mix of four 10/100 Mbps twisted-pair copper ports and two 100 Mbps multi-mode fiber ports. The NETSW-EIS6-MM supports SC-style connectors.
  - Use 10BASE-T/100BASE-TX/100BASE-FX
  - Use single-mode fiber
  - Use a loop detection algorithm
  - Comply with IEEE 802.3
  - Use an auto-negotiated data rate and flow control on twisted pair ports
  - Use broadcast storm control
  - Use full- or half-duplex
  - Use a NETCOM-BRKT mounting bracket to easily mount in a 3-CHAS7 or MFC-A
  - Use low-voltage AC or 24 Vdc from FACP or Booster Supply
  - Use redundant power sources
  - Monitor activity with link/activity and data rate LEDs
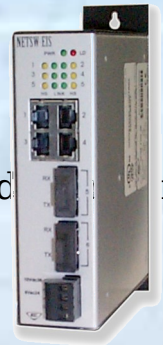
Code and Agency Approvals

- Always Consult the LAHJ!
- Underwriters Laboratories, Inc.
  - Without Common Control
    - Panels Listed for Connection to UL Information Technology Equipment (ITE), I.e. Device Server
    - Satisfies all requirements for Protected Premise and Supervising Station Alarm System Applications
  - Utilizing Common Control
    - Protected Premise
      - All LAN/WAN must be UOJZ or UOXX or
      - Meet Exemptions in 6.8.2.4.1 of NFPA 72, 2002

Code and Agency Approvals
Bandwidth Requirements

- Data Between FACP and FireWorks
  - Ping Time less than 500 ms
  - 1.8Kbps for each EST3
  - 1.0 Kbps for EST2, IRC-3 and FCC
  - Packet Size: 544 bytes for EST3, 76 bytes for EST2, IRC-3 and FCC
- Data Between EST3 and ACDB
  - 1.2Kbps (40K max, 0.0 typical)
  - Packet Size: 1.0K
- Data Between CCTV Controller and FireWorks
  - 0.4 Kbps
- Data Between FACP and OS/2 FireWorks
  - 1.0Kbps (10K max)for each panel
  - Packet Size: 76 bytes
- Data Between FACP and VDU
  - 10 Kbps max, 0.0 Kbps typical)
  - Packet Size: 464 bytes

Network Applications
(FireWorks to a Single Panel)

FireWorks with network interface card — Ethernet connection [1] — Ethernet network LAN/WAN — Ethernet connection [1] — Device server — Serial RS-232 connection [2] — Fire alarm control panel
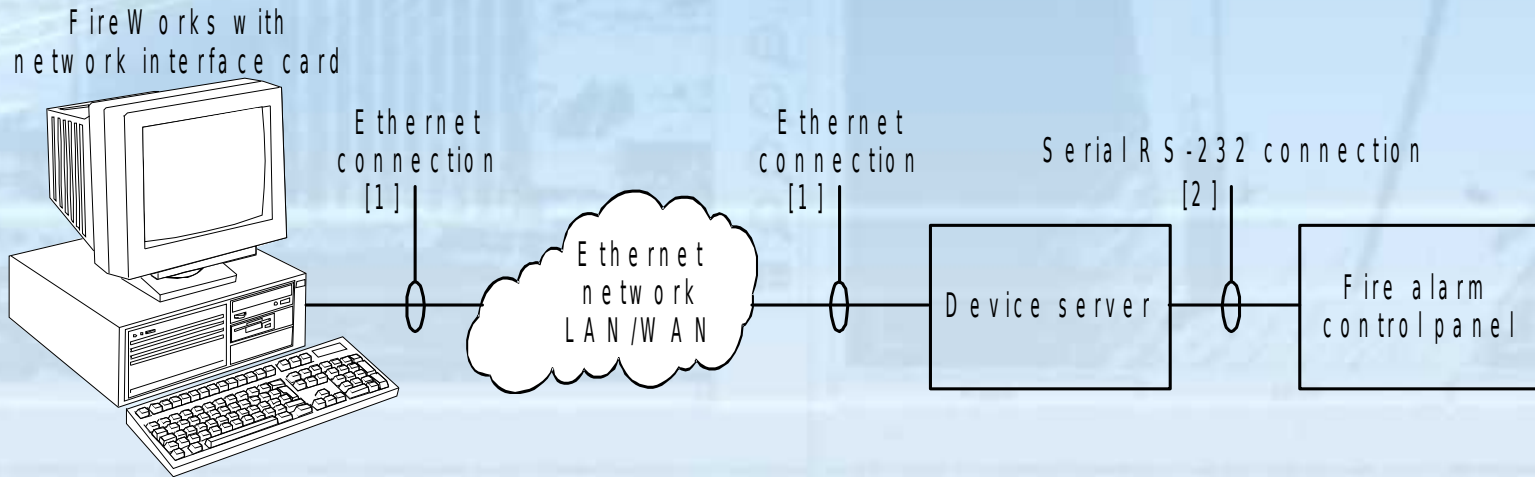
- Hardware Required
  - FireWorks with NIC
  - One Device Server
    - NETCOM-1S
    - NETCOM-1F
  - FACP
  - NETCOM-CD

- Network Requirements
  - Ethernet Network LAN/WAN
  - One Static IP Address for Each Device Server & FW
  - Network Security - Provided by Others

Network Applications
(FireWorks to Multiple Panels)
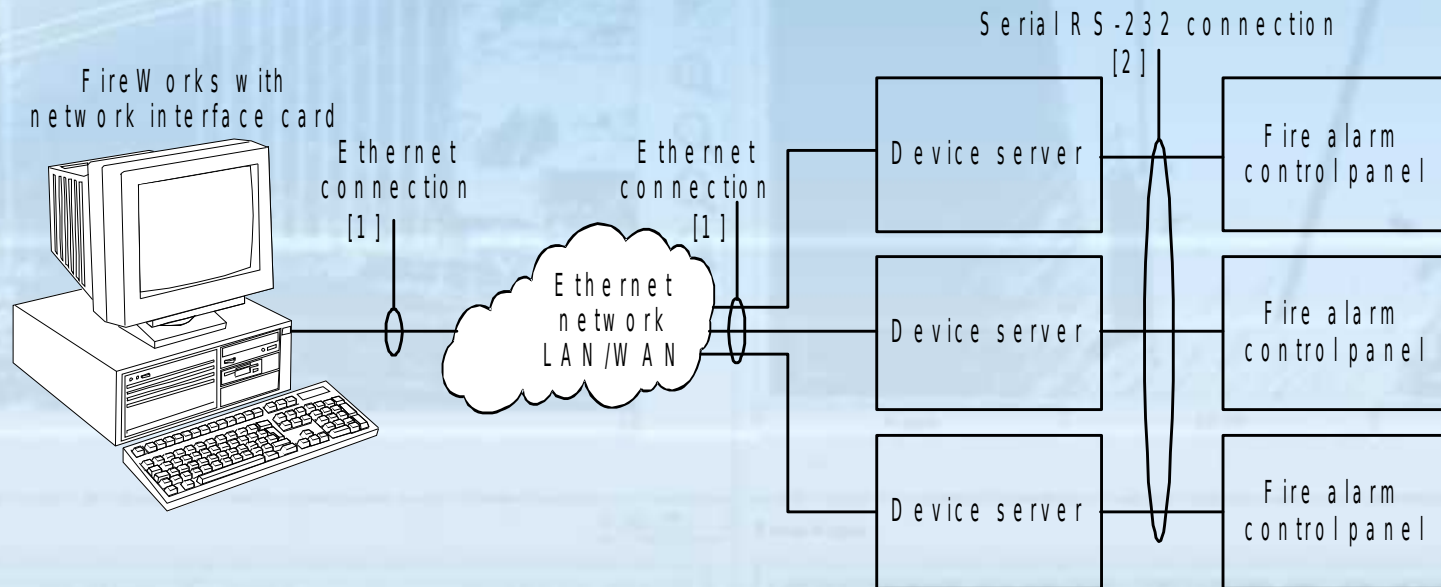
- Hardware Required
  - FireWorks with NIC
  - One Device Server
    - NETCOM-1S
    - NETCOM-1F
  - FACPs
  - NETCOM-CD

- Network Requirements
  - Ethernet Network LAN/WAN
  - One Static IP Address for Each Device Server & FW
  - Network Security - Provided by Others

Network Applications (FireWorks to Multiple Panels via Hub)

FireWorks with network interface card

Ethernet connection [1]

Ethernet network LAN/WAN

Ethernet connection [1]

NETCOM-16D multiport device server [3]

Up to 16 serial RS-232 connections [2]

Up to 16 fire alarm control panels (CP)

CP
CP
CP
CP
CP
CP
CP
CP
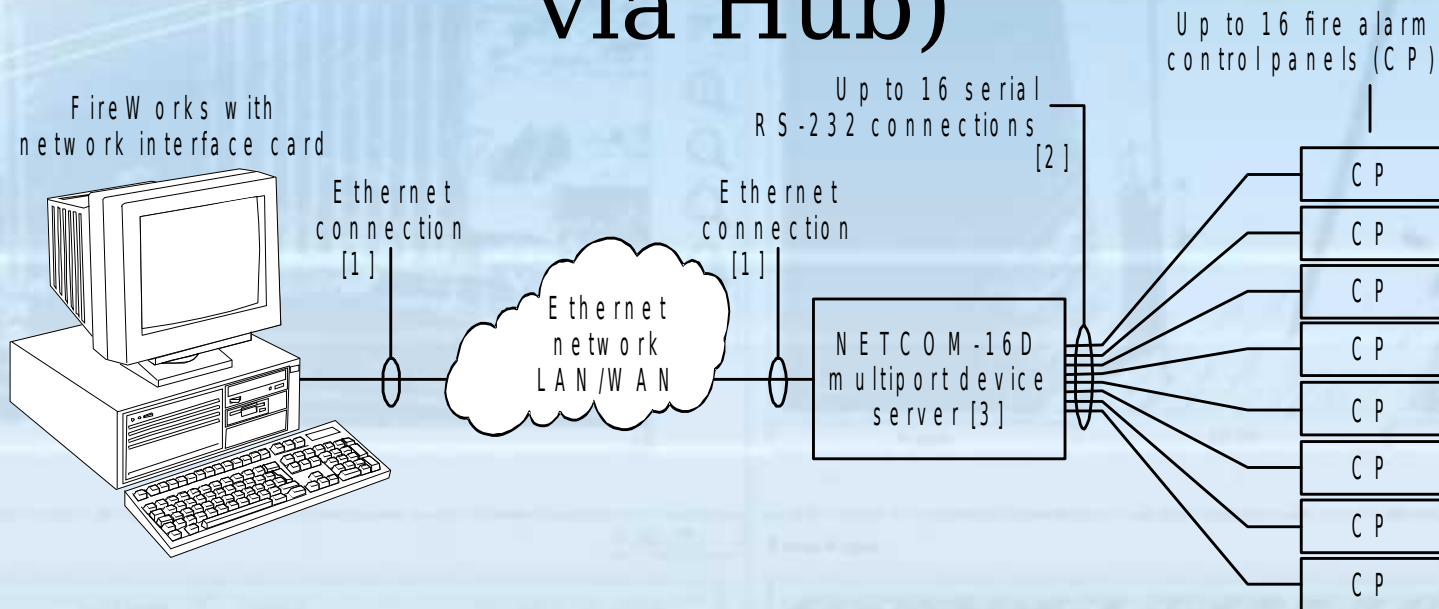
- Hardware Required
  - FireWorks with NIC
  - One NETCOM-16D
    - AC Surge Protector
  - FACPs (Up to 16)
  - EZ WebCon Software Cd

- Network Requirements
  - Ethernet Network LAN/WAN
  - One Static IP Address for Each Device Server & FW
  - Network Security - Provided by Others

Network Applications
(FireWorks to Multiple Panels via Modems)

Up to 16 short haul modems

Up to 16 shorthaul modems

Up to 16 fire alarm control panels (CP)

RS-232 [2]

FireWorks with network interface card

Ethernet connection [1]

Ethernet connection [1]

Ethernet network LAN/WAN

Up to 16 serial RS-232 connections [2]

NETCOM-16D multiport device server [3]

SHM — CP
SHM — CP
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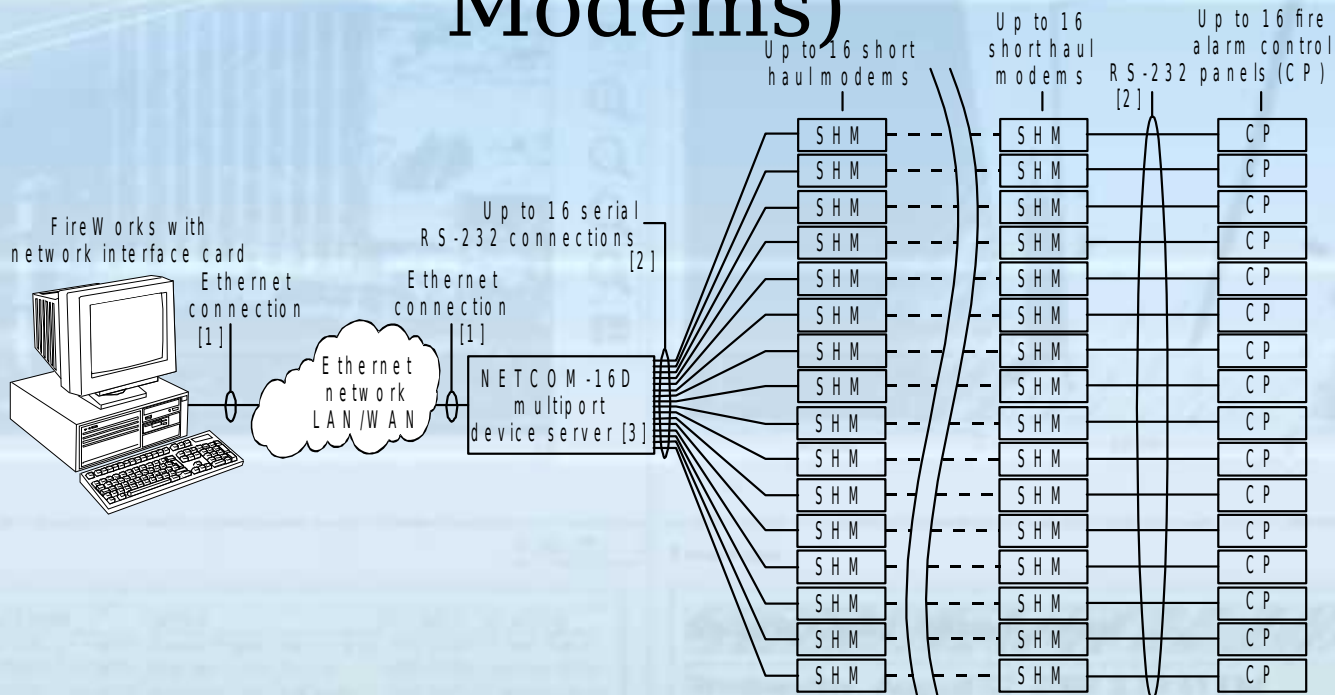
- Hardware Required
  - FireWorks with NIC
  - One NETCOM-16D
    - AC Surge Protector
  - Up to 32 SHM's
  - FACPs (Up to 16)
  - EZ WebCon Software Cd

- Network Requirements
  - Ethernet Network LAN/WAN
  - One Static IP Address for Each Device Server & FW
  - Network Security - Provided by Others

Network Applications
(ACDB to a Single Panel)

FireWorks with
network interface card

Ethernet
connection
[1]

Ethernet
connection
[1]

Serial RS-232 connection
[2]

Ethernet
network
LAN/WAN

Device server

Fire alarm
control panel

- Hardware Required
  – ACDB Computer with NIC and NETDIRECT Software
  – One Device Server
    - NETCOM-1S
    - NETCOM-1F
  – EST3
  – NETCOM-CD

- Network Requirements
  – Ethernet Network LAN/WAN
  – One Static IP Address for Each Device Server & ACDB Computer
  – Network Security - Provided by Others

Network Applications
(ACDB to Multiple Panels)
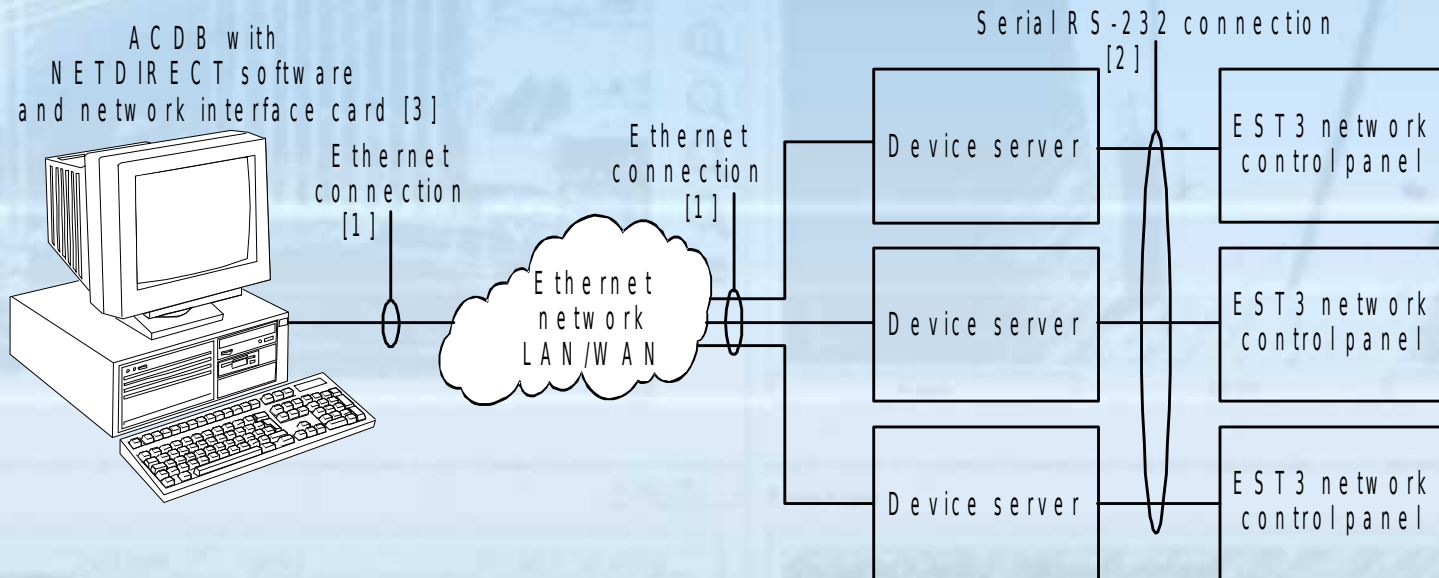
ACDB with
NETDIRECT software
and network interface card [3]

Ethernet
connection
[1]

Ethernet
connection
[1]

Ethernet
network
LAN/WAN

Serial RS-232 connection
[2]

Device server

Device server

Device server

EST3 network
control panel

EST3 network
control panel

EST3 network
control panel

- Hardware Required
  - ACDB Computer with NIC and NETDIRECT Software
  - One Device Server
    - NETCOM-1S
    - NETCOM-1F
  - EST3
  - NETCOM-CD

- Network Requirements
  - Ethernet Network LAN/WAN
  - One Static IP Address for Each Device Server & ACDB Computer
  - Network Security - Provided by Others

Network Applications
(ACDB to Single Panel - Multi-Tenant)

Multiple ACDBs with NETDIRECT software and network interface card [3]

Ethernet connection [1]

Serial RS-232 connection [2]

Ethernet network LAN/WAN

Device server

EST3 network control panel

Ethernet connection [1]

- Hardware Required
  - Multiple ACDB Computer with NIC and NETDIRECT
  - One Device Server
    - NETCOM-1S
    - NETCOM-1F
  - EST3
  - NETCOM-CD

- Network Requirements
  - Ethernet Network LAN/WAN
  - One Static IP Address for Each Device Server & ACDB Computer
  - Network Security - Provided by Others

Network Applications
(FW & ACDB to a Single Panel)

FireWorks with network interface card [4] [5]

ACDB with NETDIRECT software and network interface card [3]

Ethernet connection [1]

Ethernet network LAN/WAN

Ethernet connection [1]

Device server

Device server

Serial RS-232 connection [2]

EST3 network control panel

- Hardware Required
  - ACDB Computer with NIC and NETDIRECT
  - FireWorks with NIC
  - Two Device Server
    - NETCOM-1S
    - NETCOM-1F
  - EST3
  - NETCOM-CD

- Network Requirements
  - Ethernet Network LAN/WAN
  - One Static IP Address for Each Device Server, FW & ACDB Computer
  - Network Security - Provided by Others
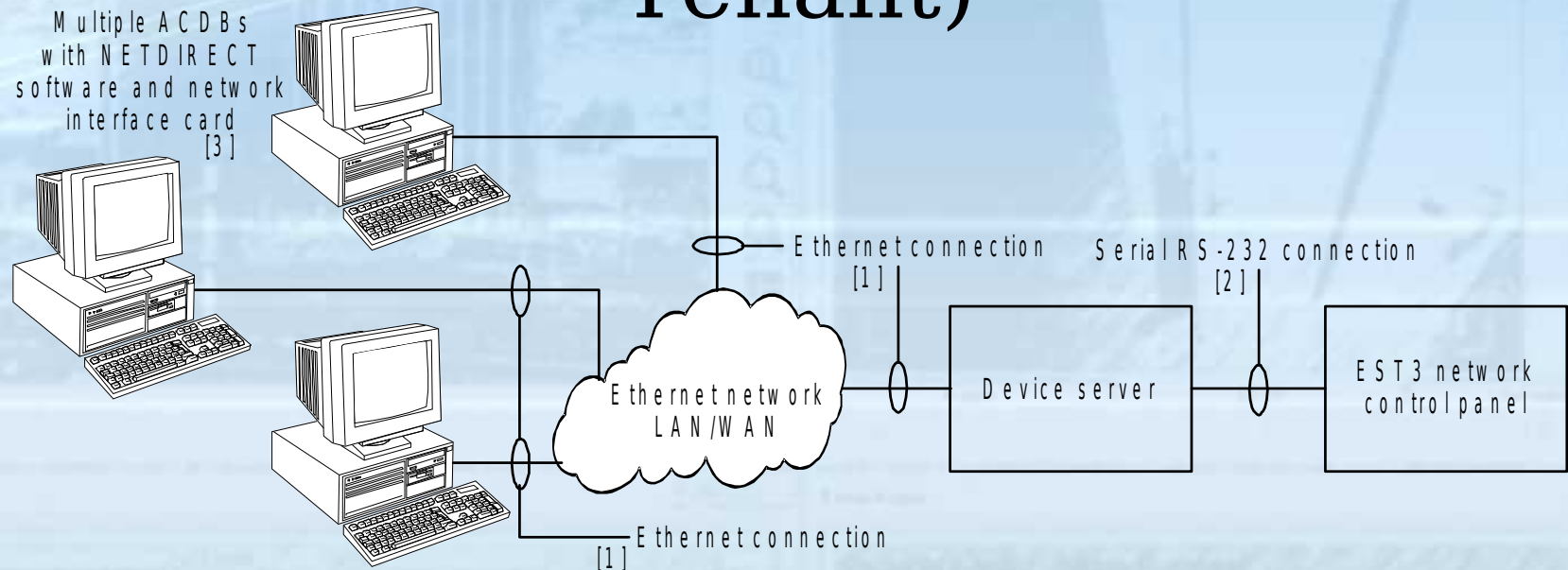
Network Applications
(FW with ACDB to a Single Panel)

Computer with FireWorks and ACDB with NETDIRECT software and network interface card [3]

Ethernet connection [1]

Ethernet network LAN/WAN

Ethernet connection [1]

Serial RS-232 connection [2]

Device server

Device server

EST3 network control panel

- Hardware Required
  - Computer with FW and ACDB with NIC and NETDIRECT
  - FireWorks with NIC
  - Two Device Server
    - NETCOM-1S
    - NETCOM-1F
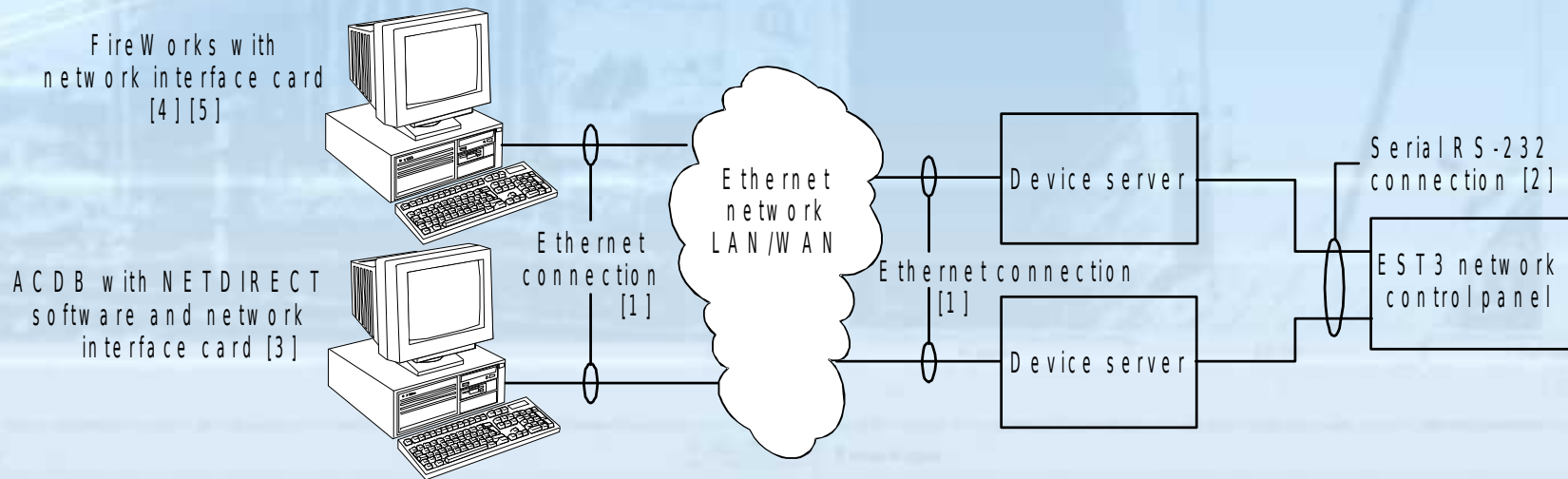 - EST3 Network
  - NETCOM-CD

- Network Requirements
  - Ethernet Network LAN/WAN
  - One Static IP Address for Each Device Server, FW & ACDB Computer
  - Network Security - Provided by Others

Network Applications (FW with ACDB to Multiple Panel)

Computer with FireWorks and ACDB with NETDIRECT software and network interface card [3]

Serial RS-232 connection [2]

Ethernet connection [1]

Ethernet connection [1]

Ethernet network LAN/WAN

DS

DS

DS

DS

DS

DS

EST3 network control panel

EST3 network control panel

EST3 network control panel

- Hardware Required
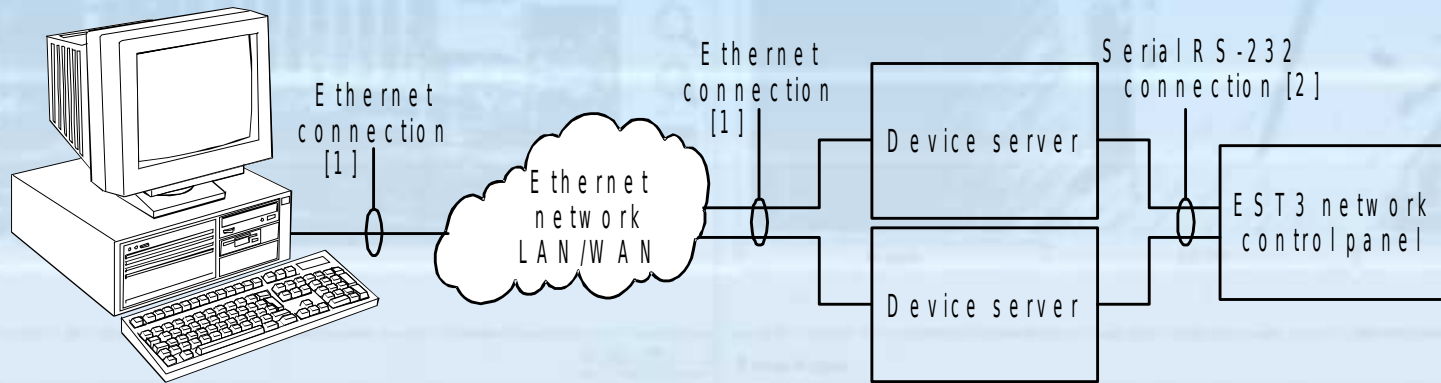   - Computer with FW and ACDB with NIC and NETDIRECT
    - FireWorks with NIC
    - Two Device Server
        - NETCOM-1S
        - NETCOM-1F
    - EST3 Network
    - NETCOM-CD

- Network Requirements
    - Ethernet Network LAN/WAN
    - One Static IP Address for Each Device Server, FW & ACDB Computer
    - Network Security - Provided by Others

Network Applications
(FW with CCTV)

FireWorks with CCTV
with NETDIRECT software [3]

Ethernet connection
[1]

Serial RS-232 connection
[2]

CCTV controller

Ethernet
network
LAN/WAN

Device
server
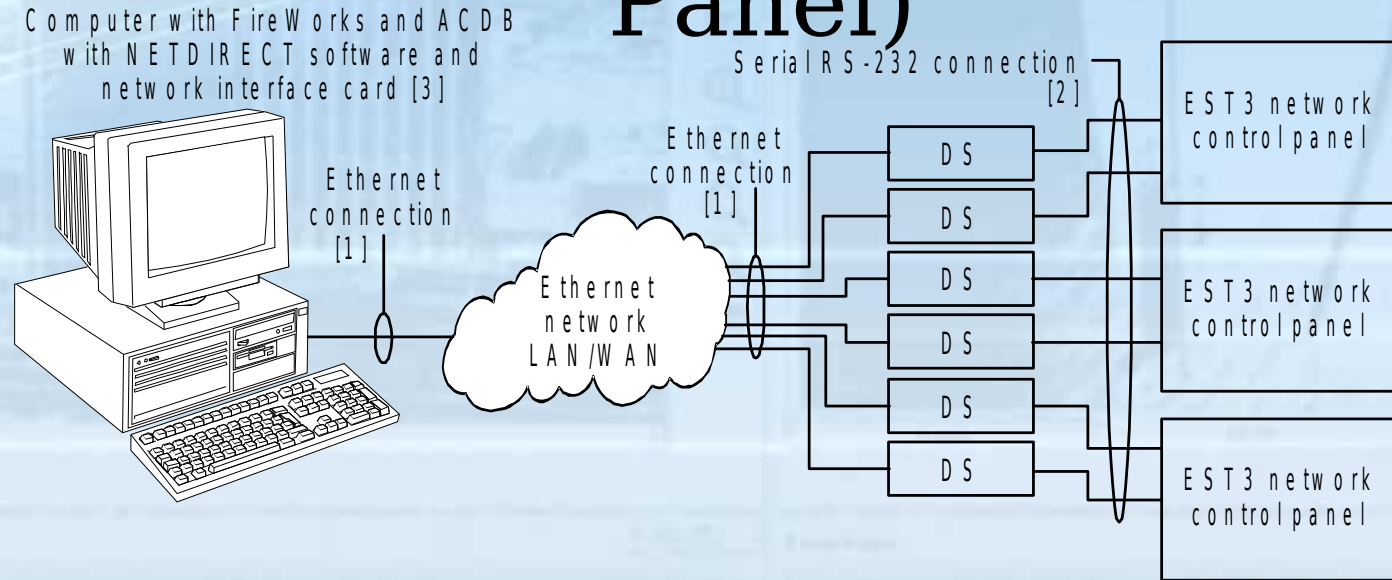
[4]
Coax cable connection

Cameras

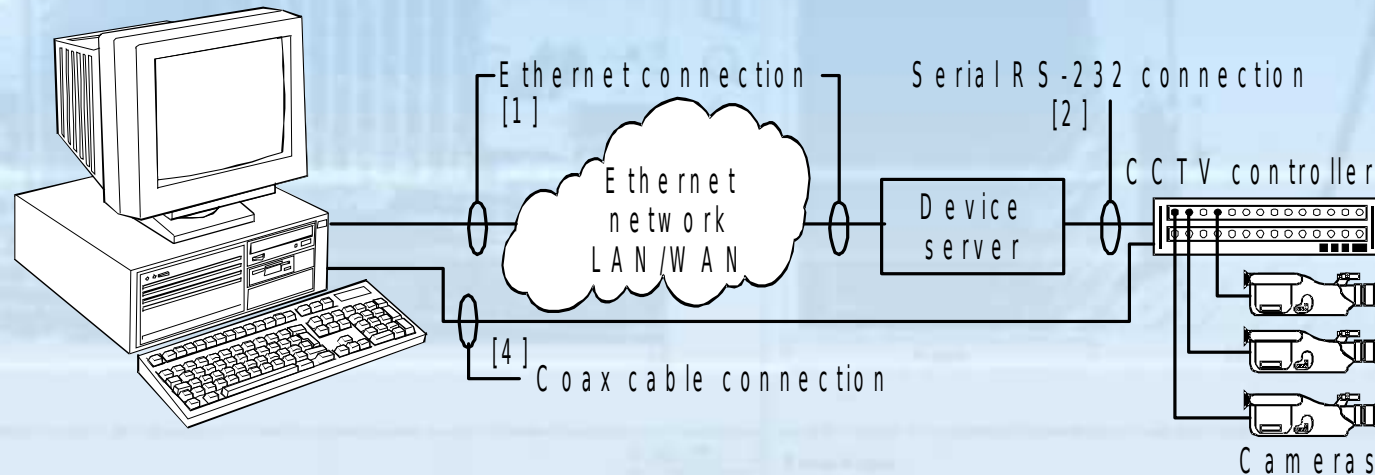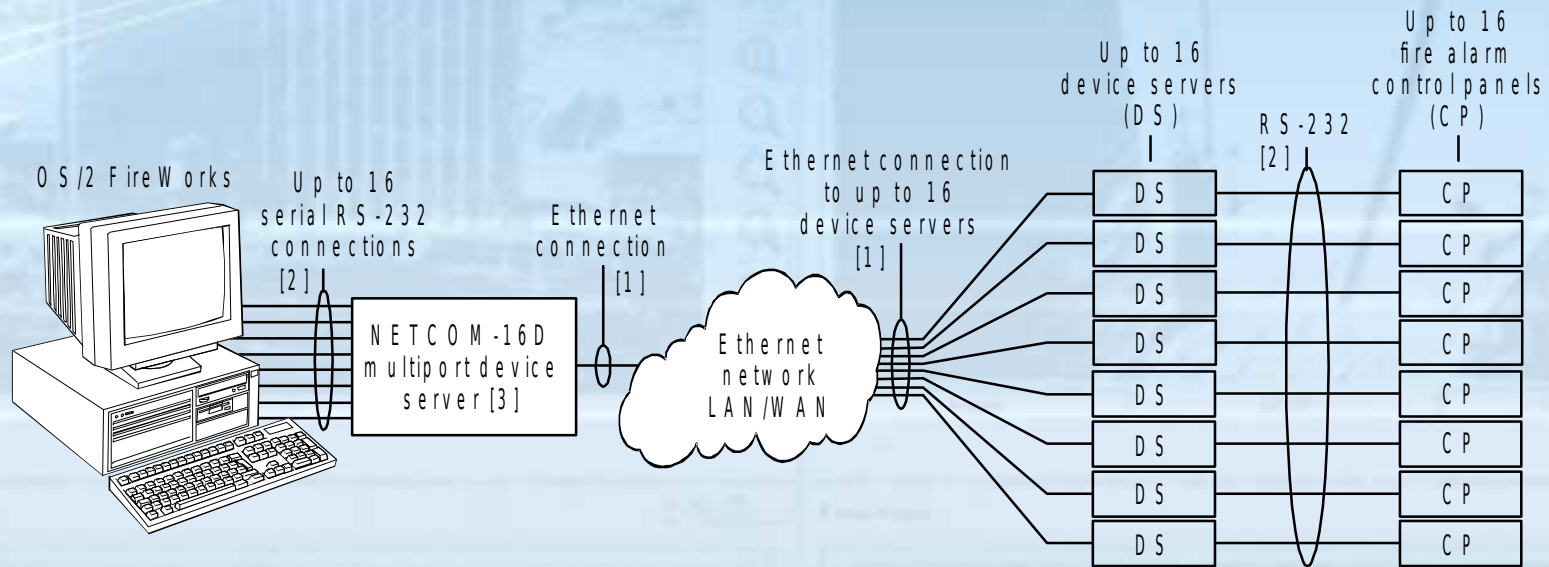- Hardware Required
  - Computer with FW and ACDB with NIC and NETDIRECT
  - FireWorks with NIC
  - Two Device Server
    - NETCOM-1S
    - NETCOM-1F
  - EST3 Network
  - NETCOM-CD

- Network Requirements
  - Ethernet Network LAN/WAN
  - One Static IP Address for Each Device Server, FW & ACDB Computer
  - Network Security - Provided by Others

Network Applications
(OS/2 FireWorks to Multiple Panels)

Up to 16 device servers (DS)

RS-232 [2]

Up to 16 fire alarm control panels (CP)

OS/2 FireWorks

Up to 16 serial RS-232 connections [2]

Ethernet connection [1]

Ethernet connection to up to 16 device servers [1]

NETCOM-16D multiport device server [3]

Ethernet network LAN/WAN

DS — CP
DS — CP
DS — CP
DS — CP
DS — CP
DS — CP
DS — CP
DS — CP

- Hardware Required
  - OS/2 FireWorks with NIC
  - One NETCOM-16D
    - AC Surge Protector
  - Up to 16 device Servers
  - FACPs (Up to 16)
  - EZ WebCon Software Cd

- Network Requirements
  - Ethernet Network LAN/WAN
  - One Static IP Address for Each Device Server & FW
  - Network Security - Provided by Others

Network Applications
(Data Terminal Application)

Serial RS-232 connection [2]	Ethernet connection [1]	Ethernet connection [1]	Serial RS-232 connection [2]

Fire alarm control panel [3] — Device server — Ethernet network LAN/WAN — Device server — Printer [3] or 3-VDUT (EST3) or VDU-3 (FCC, IRC-3, EST2)

- Hardware Required
  - FACP with RS-232
  - Two device Servers
  - Printer, 3-VDUT, or VDU-3
  - METCOM-CD

- Network Requirements
  - Ethernet Network LAN/WAN
  - One Static IP Address for Each Device Server & FW
  - Network Security - Provided by Others

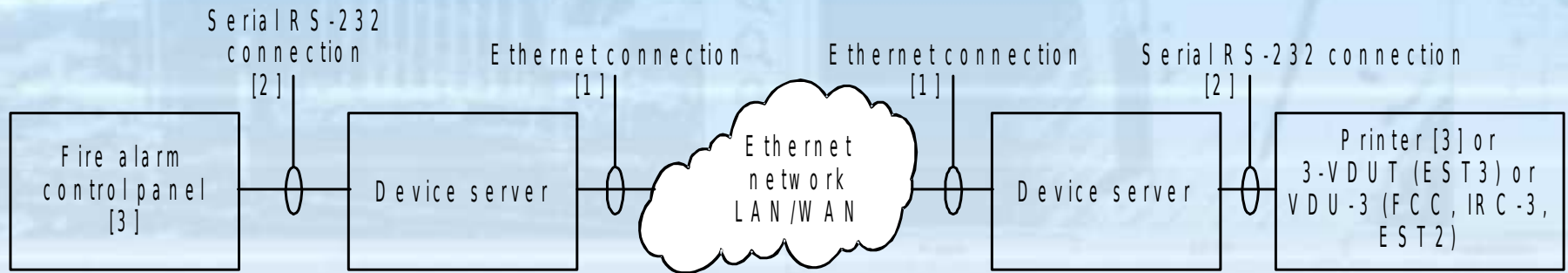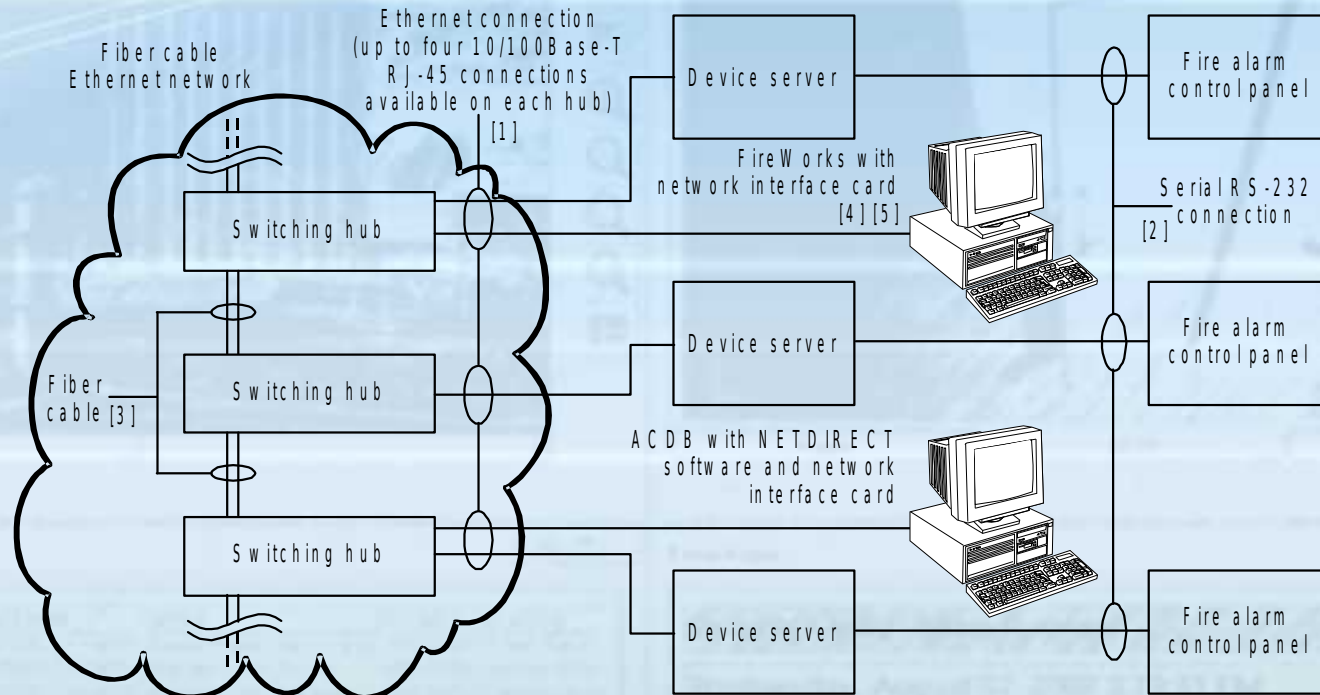# Network Applications
(Stand-Alone Network)

Fiber cable
Ethernet network

Ethernet connection
(up to four 10/100Base-T
RJ-45 connections
available on each hub)
[1]

Switching hub

Fiber
cable [3]

Switching hub

Switching hub

Device server

Device server

Device server

FireWorks with
network interface card
[4] [5]

ACDB with NETDIRECT
software and network
interface card

Serial RS-232
connection
[2]

Fire alarm
control panel

Fire alarm
control panel

Fire alarm
control panel

- Hardware Required
  - FACP with RS-232
  - Two device Servers
  - Printer, 3-VDUT, or VDU-3
  - METCOM-CD

- Network Requirements
  - Ethernet Network LAN/WAN
  - One Static IP Address for Each Device Server & FW
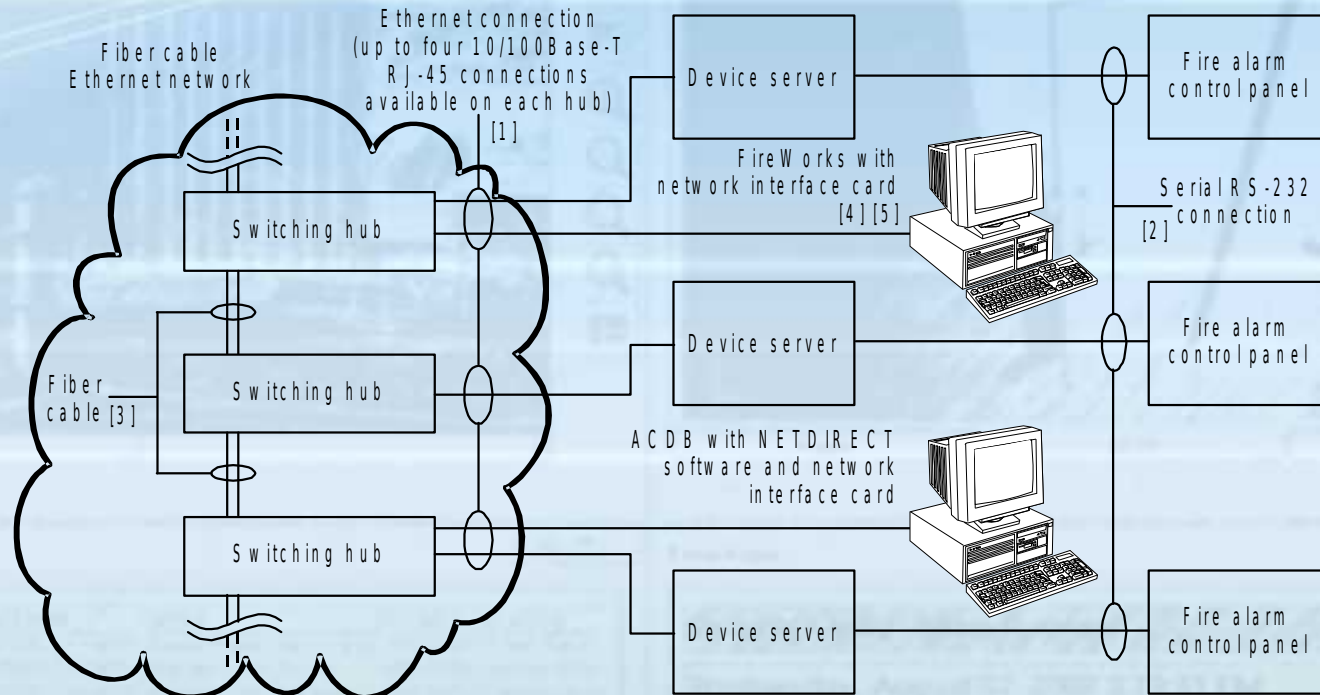 - Network Security - Provided by Others

Network Applications
(Stand-Alone Network)

- Hardware Requirements
  - Switching Hubs (NETSW-EIS6-SM or NETSW-EIS6-MM
  - One Device Server/panel (NETCOM-1S or NETCOM-1F)
  - FW and/or ACDB computers with NIC
  - Control Panels
  - NETCOM-CD